

CLAIM AMENDMENT

Please amend the claims in accordance with the following listing.

Listing of Claims:

1. (Previously Amended) A method of propagating data, comprising:
mirroring the data from a first filer to a second filer; and
mirroring the data from the second filer to a third filer;
wherein snapshots are used in mirroring the data, the data is organized in one or more
volumes on the filers, one or more of the volumes are mirrored, and the first filer uses softlocks to
mark snapshots needed for mirroring volumes from the first filer;
wherein deletion of a snapshot marked with a softlock is prevented.

Claims 2 and 3 (Cancelled)

4. (Previously Amended) A method as in claim 1, wherein deletion of a snapshot not
marked with a softlock is permitted.

5. (Original) A method as in claim 4, wherein entry of a release command to the first filer
informs the first filer that the second filer will no longer mirror the volume from the first filer, and

wherein the softlocks are updated to indicate that any snapshot corresponding to the volume can be deleted.

6. (Previously Presented) A method as in claim 1, wherein the second filer uses softlocks to mark snapshots needed for mirroring volumes from the second filer, and wherein deletion of a snapshot marked with a softlock is prevented.

7. (Previously Presented) A method as in claim 1, wherein each filer uses softlocks to mark snapshots needed for mirroring volumes to any downstream filers, and wherein deletion of a snapshot marked with a softlock is prevented.

8. (Original) A method as in claim 7, wherein entry of a release command to the second filer informs the second filer that the third filer will no longer mirror the volume from the second filer, and wherein the softlocks are updated to indicate that any snapshot corresponding to the volume can be deleted.

9. (Previously Presented) A method of propagating data, comprising:
mirroring the data from a first filer to a second filer; and
mirroring the data from the second filer to a third filer;
wherein snapshots are used in mirroring the data, the data is organized in one or more volumes on the filers, and one or more of the volumes are mirrored; and

wherein jump ahead protection is used during mirroring operations, said jump ahead protection preventing activation of a snapshot of a volume while mirroring the volume to another filer.

10. (Cancelled)

11. (Previously Presented) A method as in claim 1, wherein the second filer also mirrors one or more volumes from a fourth filer.

12. (Previously Presented) A method as in claim 1, wherein a fourth filer also mirrors one or more volumes from the second filer.

13. (Previously Presented) A method as in claim 1, wherein the second filer also mirrors one or more volumes from a fourth filer, and wherein a fifth filer mirrors one or more volumes from the second filer.

14. (Previously Amended) A memory storing information including instructions, the instructions for propagating data, the instructions comprising mirroring the data from a first filer to a second filer for mirroring to a third filer;

wherein snapshots are used in mirroring the data, the data is organized in one or more volumes on the filers, one or more of the volumes are mirrored, and the first filer uses softlocks to mark snapshots needed for mirroring volumes from the first filer; and

wherein the instructions further comprise preventing deletion of a snapshot marked with a softlock.

Claims 15 and 16 (Cancelled)

17. (Previously Amended) A memory as in claim 14, wherein the instructions further comprise permitting deletion of a snapshot not marked with a softlock.

18. (Original) A memory as in claim 17, wherein the instructions further comprise, upon entry of a release command to the first filer that informs the first filer that the second filer will no longer mirror the volume from the first filer, updating the softlocks to indicate that snapshots corresponding to the volume can be deleted.

19. (Previously Amended) A memory as in claim 14, wherein the information further includes softlocks that mark snapshots needed for mirroring volumes from the second filer, and wherein the instructions further comprise preventing deletion of a snapshot marked with a softlock.

20. (Previously Presented) A memory as in claim 14, wherein the information further includes softlocks that mark snapshots needed for mirroring volumes to any downstream filers, and wherein the instructions further comprise preventing deletion of a snapshot marked with a softlock.

21. (Previously Presented) A memory storing information including instructions, the instructions for propagating data, the instructions comprising mirroring the data from a first filer to a second filer for mirroring to a third filer;

wherein snapshots are used in mirroring the data, the data is organized in one or more volumes on the filers, and one or more of the volumes are mirrored; and

wherein the instructions for mirroring further comprise instructions for jump ahead protection during mirroring operations, said jump ahead protection preventing activation of a snapshot of a volume while mirroring the volume to another filer.

22. (Cancelled)

23. (Previously Presented) A memory as in claim 14, wherein the second filer also mirrors one or more volumes from a fourth filer.

24. (Previously Presented) A memory as in claim 14, wherein the memory includes RAM, ROM, a disk, or a CD-ROM.

25. (Previously Amended) A filer that mirrors data to one or more other filers, comprising:

a file system that stores the data;

a processor; and

a memory storing instructions for the processor, the instructions comprising mirroring the data from the filer to a second filer for mirroring to a third filer, wherein snapshots are used in

mirroring the data, the data is organized in one or more volumes on the filers, one or more of the volumes are mirrored, and the first filer uses softlocks to mark snapshots needed for mirroring volumes from the first filer;

wherein the instructions further comprise preventing deletion of a snapshot marked with a softlock.

Claims 26 and 27 (Cancelled)

28. (Previously Amended) A filer as in claim 25, wherein the instructions further comprise permitting deletion of a snapshot not marked with a softlock.

29. (Original) A filer as in claim 28, wherein the instructions further comprise, upon entry of a release command to the filer that informs the filer that the second filer will no longer mirror the volume from the filer, updating the softlocks to indicate that snapshots corresponding to the volume can be deleted.

30. (Previously Presented) A filer as in claim 25, wherein the file system further stores softlocks that mark snapshots needed for mirroring volumes to any downstream filers, and wherein the instructions further comprise preventing deletion of a snapshot marked with a softlock.

31. (Previously Presented) A filer that mirrors data to one or more other filers, comprising:
a file system that stores the data;

a processor; and

a memory storing instructions for the processor, the instructions comprising mirroring the data from the filer to a second filer for mirroring to a third filer;

wherein snapshots are used in mirroring the data, the data is organized in one or more volumes on the filers, and one or more of the volumes are mirrored; and

wherein the instructions for mirroring further comprise instructions for jump ahead protection during mirroring operations, said jump ahead protection preventing activation of a snapshot of a volume while mirroring the volume to another filer.

32. (Cancelled)

33. (Previously Presented) A filer as in claim 25, wherein the second filer also mirrors one or more volumes from a fourth filer.

34. (Previously Presented) A filer as in claim 25, wherein the file system utilizes a write anywhere file system layout implemented on a redundant array of inexpensive disks.

35. (Original) Data stored in a memory of a filer, the filer mirroring one or more volumes to a second filer for mirroring to a third filer, the data comprising one or more softlocks that indicate what volumes are mirrored to the second filer and the third filer, whereby deletion of snapshots associated with those volumes is prevented.

36. (New) A method of propagating a file system, the method comprising:

mirroring data of the file system from a first file server to a second file server; and

mirroring the data from the second file server to a third file server;

wherein:

snapshots are used in mirroring the data, each snapshot comprising all storage blocks required for the data and file structure of the file system;

the file system is organized in one or more volumes on the first and second file servers;

the first file server uses softlocks to mark snapshots needed for mirroring volumes from the first file server; and

wherein deletion of a snapshot marked with a softlock can be prevented.